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REMARKS

Claim 1 has been amended and claims 19-24 have been added. Claims 1-11 and 19-24 remain for further consideration. No new matter has been added.

The rejections shall be taken up in the order presented in the Official Action.

3-4. Claims 1-4 and 6-10 currently stand rejected for allegedly being obvious in view of the subject matter disclosed in U.S. Patent 4,031,377 to Deutsch et al (hereinafter "Deutsch").

CLAIM 1

The system of claim 1 recites *"means for summing said first and second shifted signals to provide a summed signal value that is indicative of the product of said multiplier and said multiplicand;"*. (emphasis added, cl. 1). In contrast, the circuit disclosed in Deutsch generates a product signal ***only after*** the right or left shift circuit 29 (FIG. 1). Deutsch makes this point emphatically clear when he states *"[t]he output of the shift circuit 29 is the multiplication product X=SC."*. (col. 5, lines 24-26). The adder 27 of Deutsch does not provide a signal that is indicative of the product. The output of the adder 27 in Deutsch is simply the product of S and the mantissa of C. The left or right shift circuit 29 is critical in order to multiply by the power of C (see col. 5, lines 21-24). Only after the left or right shift circuit 29 is there a value available which is indicative of the product of the multiplier and the multiplicand. Hence, Deutsch clearly fails to disclose or suggest *"means for summing said first and second shifted signals to provide a summed signal value that is indicative of the product of said multiplier signal value and said multiplicand signal value;"*. (emphasis added, cl. 1).

During the telephone conference between the undersigned and Examiner Do, the Examiner

alleged that his rejection was discussing the right or left shift circuit **29'** rather than the right or left shift circuit **29**, both illustrated in FIG. 1 of Deutsch (note, items 29 and 29' are different items). The undersigned pointed out that the Official Action does not specifically mention the right or left shift circuit **29'**, but that I would consider this point and address it in the response to the Official Action. No agreement was reached during the telephone conference, during which we discussed the patentability of the claims in view of Deutsch.

The Official Action contends *"Deutsch et al. discloses another embodiment the shift circuit would be a bi-directional shifter for either shifting left or right depending upon the multiplier factor (e.g., col. 4, lines 5-12)."* (Official Action, pg. 3) The Official Action then concludes *"[t]herefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to replace the mono-directional shift circuits with the bi-directional shift circuits with functional as cited in Deutsch et al.'s alternative embodiment because it would enable to correctly multiplying with decimal factor (e.g., col. 9, line 60 to col. 10, line 2)."* (Official Action, pg. 3). This rejection is improper for several reasons.

A PRIMA FACIE CASE OF OBVIOUSNESS HAS NOT BEEN ESTABLISHED

There is no proper suggestion regarding why a skilled person would allegedly convert the left shift circuits 12, 13 to bi-directional devices. The multiplier circuit 10 of Deutsch is configured and arranged such that the shift circuits 12, 13 ONLY NEED TO SHIFT LEFT. The shift circuits 12, 13 only need to shift left in order to implement the numbers shown in the right column of Table II of Deutsch. Since the values in the right column of Deutsch are all powers of two greater than one, ONLY left shifts are required. If the shift circuits 12, 13 were allowed to shift right then the multiplier circuit 10 in Deutsch would not longer work for its intended purpose since the values

output by the shift circuits 12, 13 would not be the values set forth in the right column of Table II of Deutsch. Therefore, it is respectfully submitted that the contention in the Official Action that a person of ordinary skill would have been motivated to convert the left shift circuits 12, 13 into bi-directional devices is not correct. *"Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching suggestion or incentive supporting the combination."* In re Geiger, 2 U.S.P.Q.2d 1276, 1278 (Fed. Cir. 1987). *"Although the Commissioner suggests that [the structure in the primary prior art reference] could readily be modified to form the [claimed] structure, '[t]he mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification.'"* In re Laskowski, 10 U.S.P.Q.2d 1397, 1398 (Fed. Cir. 1989), citing In re Gordon, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984). Hence, it is respectfully submitted that a prima facia case of obviousness has not been presented since there is no proper teaching, suggestion or incentive that would lead one of ordinary skill in the art to modify Deutsch to create the claimed invention.

DEUTSCH CAN NOT BE MODIFIED AS SUGGESTED

Deutsch discloses two different embodiments, which are selectable based upon the position of the switches 80 and 81 illustrated in FIG. 1. In a first position, the product X=SC is output from the right or left shift circuit 29, while in a second position the product X=SC is output from the right or left shift circuit 29'. In either embodiment the system of Deutsch discloses that the shift circuits 12, 13 remain as left shift circuits. A fair and proper reading reveals that Deutsch merely teaches that the location of the right or left shift circuit can be placed either before or after the left shift circuit 12, 13. Specifically, in the first embodiment as shown in FIG. 1 the right or left shift circuit 29 is engaged in the circuit and the product X=SC is output from the right or left shift circuit 29. In

the second embodiment when the switches 80 and 81 are repositioned, the product X=SC is output from the adder 27. Therefore, it is respectfully submitted that the contention *"[t]herefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to replace the mono-directional shift circuits with the bi-directional shift circuits with functional as cited in Deutsch et al.'s alternative embodiment because it would enable to correctly multiplying with decimal factor (e.g., col. 9, line 60 to col. 10, line 2)."* (Official Action, pg. 3) is based upon an overly broad and improper reading of Deutsch. In addition, if the mono-directional shifters 12, 13 of Deutsch are modified to be bi-directional as suggested, then the system of Deutsch may not work for its intended purpose, since the system of Deutsch is particularly configured and arranged to handle the numbers shown in Table II of Deutsch.

CLAIM 7

Claim 7 recites a monolithic integrated circuit that includes first means for bi-directionally shifting and second means for bi-directionally shifting. The Official Action recognizes that Deutsch does not disclose such a feature, but alleges that Deutsch renders obvious such a feature.

Specifically, the Official Action contends that a skilled person at the time of the invention would have been motivated to modify Deutsch based upon the alleged teaching of Deutsch to make the left shift circuits 12, 13 (see FIG. 1 of Deutsch) bi-directional. It is respectfully submitted that this obviousness rejection is based upon an incorrect and impermissibly broad reading of Deutsch. After admitting that Deutsch fails to disclose the claimed first and second bi-directional shifters (see Official Action, pg. 5), the Official Action then contends *"Deutsch et al. discloses [in] another embodiment the shift registers would be a bi-directional shifter for either shifting left or right depending on the multiplier factor (e.g., col. 4, lines 5-12)."* (Official Action, pg. 5). The Official

Action then concludes *"[t]herefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to replace the mono-directional shift circuits with the bi-directional shift circuits with functional as cited in Deutsch et al.'s alternative embodiment because it would enable to correctly multiplying with decimal factor."* (Official Action, pg. 5). This rejection is improper for at least the same reasons as set forth above with respect to claim 1.

The Official Action contends that col. 4, lines 4-15 and col. 9, line 60 – col. 10, line 2 of Deutsch would suggest to a skilled person that they modify the left shifters 12, 13 to be bi-directional devices. However, a fair and proper reading of the text at these particular sections of col. 4, lines 5-15 merely reveals how the left or right shift circuit 29 (see FIG. 1 of Deutsch) operates. The left or right shift register circuit 29' in FIG. 1 of Deutsch is not an alternative component to the left shift registers 12, 13 and but rather a critical device that is required to operate *in combination* with the left shift registers 12, 13 in order to implement the multiplier circuit illustrated in FIG. 1. Therefore, the allegations in the Official Action regarding the supposed alternative embodiment and why a skilled person would allegedly modify Deutsch are both based upon an improper and overly broad reading of Deutsch. Deutsch teaches that one may user either circuit 29 or 29', but in either case the left shift circuit 12, 13 remain.

In addition, there is no proper suggestion regarding why a skilled person would allegedly convert the left shift circuits 12, 13 to bi-directional devices. The multiplier circuit 10 of Deutsch is configured and arranged such that the shift circuits 12, 13 ONLY NEED TO SHIFT LEFT. The shift circuits 12, 13 only need to shift left in order to implement the numbers shown in the right column of Table II of Deutsch. Since the values in the right column of Deutsch are all powers of two greater than one, ONLY left shifts are required. If the shift circuit 12, 13 were allowed to shift right then the multiplier circuit 10 in Deutsch would no longer work for its intended purpose since the values

output by the shift circuits 12, 13 would not be the values set forth in the right column of Table II of Deutsch. Therefore, it is respectfully submitted that the contention in the Official Action that a person of ordinary skill would have been motivated to convert the left shift circuits 12, 13 into bi-directional devices in order to "*enable to correcily multiplying with decimal factor*" is incorrect. "*Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching suggestion or incentive supporting the combination.*" In re Geiger, 2 U.S.P.Q.2d 1276, 1278 (Fed. Cir. 1987). "*Although the Commissioner suggests that [the structure in the primary prior art reference] could readily be modified to form the [claimed] structure, '[t]he mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification.'*" In re Laskowski, 10 U.S.P.Q.2d 1397, 1398 (Fed. Cir. 1989), citing In re Gordon, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984). Hence, it is respectfully submitted that a prima facia case of obviousness has not been presented since there is no proper teaching, suggestion or incentive that would lead one of ordinary skill in the art to modify Deutsch to create the claimed invention.

CLAIM 19

Claim 19 has been added. It is respectfully submitted that claim 19 is patentable for at least the same reasons as claims 1 and 7 set forth above.

5. Claims 5 and 11 currently stand rejected under 35 U.S.C. §103 in view of the combined subject matter disclosed in Deutsch in view of U.S. Patent 5,402,369 to Main (hereinafter "Main").

It is respectfully submitted that this rejection is now moot, since claims 1 and 7 are patentable for at least all the reasons discussed herein.

For all the foregoing reasons, reconsideration and allowance of claims 1-11 and 19-24 is respectfully requested.

If a telephone interview could assist in the prosecution of this application, please call the undersigned attorney.

Respectfully submitted,

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